CONTACT HOLE PROFILE AND LINE EDGE WIDTH METROLOGY FOR CRITICAL IMAGE CONTROL AND FEEDBACK OF LITHOGRAPHIC FOCUS

ABSTRACT OF THE DISCLOSURE

A method uses three dimensional feature metrology for implementation of critical image control and feedback of lithographic focus and x/y tilt. The method is for measuring 3 dimensional profile changes in a photo sensitive film and feeding back compensatory exposure tool focus corrections to maintain a stable lithographic process. The measured focus change from the optimal tool focus offset is monitored directly on the critical product images for both contact hole and line images. Z Focus corrections and x/y tilt corrections are fed back independently of dose to maintain critical dimension (CD) control thereby achieving improved semiconductor wafer printing. Additionally, the method can be used to diagnose problems with the focusing system by measuring the relationship between line edge width and barometric pressure.